ASSOCIATED

OPERATOR'S MANUAL

MODEL 6029
BATTERY TESTER

SAFETY INFORMATION

Working in the vicinity of lead-acid battery is DANGEROUS due to EXPLOSIVE GASES generated by the battery which can be ignited by a spark, cigarette or flame and blow the battery apart, forcefully showering the area with battery pieces and acid.

To reduce the chance of exploding batteries follow instructions by manufacturers of batteries as well as these instructions.

A DOCTOR.

When around lead-acid batteries wear eye protection and avoid touching or rubbing the battery as well as clothing, skin and eyes. NEVER smoke, have an open flame or sparks near battery. Have plenty of ventilation and keep your face as far as possible from the battery. Undercharged lead-acid batteries will freeze during cold weather. Never test or charge a frozen battery. Do not allow tools to drop onto a battery. Do not lay tester on battery.

BATTERY LOAD TEST

This test evaluates the battery's ability to crank an engine. The tester draws current from the battery while measuring its voltage level. The voltage level of a good battery will remain relatively steady under load, but a defective battery will show a rapid loss in voltage. Battery size (CCA rating) and temperature will affect test results - follow instructions carefully.

1. Turn off engine, accessories and battery test equipment.

2. Connect negative (black) clamp to the negative (NEG, N,-) battery post. Connect positive (red) clamp to positive (POS, P, +) battery post. "Rock" clamps back and forth to insure a good electrical connection. For batteries with side terminals, use the adapters in clamps.

3. With clamps connected, tester's meter will indicate battery's STATE OF CHARGE. If state of charge is less then 12.4 (6.2) volts ("**–**" symbol on meter), the battery should be recharged before load testing. If recharging does not bring voltage to 12.4 (6.2), battery is defective. If meter needle is off scale to the left, check for loose or reversed clamps; otherwise battery is defective.

4. Note battery's rating in Cold Cranking Amps (CCA). If the rating is not printed on the battery, use the following guidelines to estimate battery size. Small (4 cyl) -300 CCA; Medium (6 cyl) -400 CCA; Large (8 cyl) -500 CCA.

5. Depress load switch for 10 seconds.

6. Read meter at the end of 10 seconds - with switch depressed. Refer to LOAD TEST ANALYSIS chart.

COMPENSATING FOR LOW TEMPERATURES

Low temperature has a degrading effect on batteries and will affect test results.

This can be compensated by reading a different scale.

If battery is 50E, read scale 100 CCA less then battery rating.

If battery is 30E, read scale 200 CCA less than battery rating.

If battery is 10E, read scale 300 CCA less than battery rating.

LOAD TEST ANALYSIS

METER ACTION AT END OF 10 SECONDS	BATTERY CONDITION INDICATED
NEEDLE IN TEMPERATURE CORRECTED GREEN SCALE	BATTERY IS GOOD
LITTLE IF ANY MOVEMENT. NEEDLE IN TEMPERATURE CORRECTED YELLOW SCALE	BATTERY QUESTIONABLE. RECHARGE AND RETEST.
NOTICEABLE METER MOVEMENT AND/OR NEEDLE IN TEMPERATURE CORRECTED RED SCALE.	BATTERY IS DEFECTIVE. REPLACE

NOTE: TOP AND REAR OF TESTER WILL HEAT UP DUE TO LOAD CURRENT.

ALLOW TESTER TO COOL ONE MINUTE BETWEEN LOAD TESTS - MAXIMUM OF 3 LOAD TESTS IN 5 MINUTE PERIOD. EXCEEDING DUTY CYCLE MAY CAUSE INCORRECT READING AND DAMAGE THE UNIT.

CHARGING VOLTAGE TEST (12 VOLT ONLY)

This test measures the output voltage of the alternator/regulator. Check for under or overcharging - which leads to poor battery performance and short life.

ENGINE SHOULD BE AT NORMAL OPERATING TEMPERATURE

1. Connect tester clamps to battery as described in Steps 1-2 under Battery Load Test.
2. Turn off all lights and accessories. Operate engine at fast idle (approximately 1500 RPM).
3. Do not operate tester's load switch.
4. Read meter voltage. Meter needle should be in Green (OK) area of Charging System scale.
5. Turn on high beam lights and blower on high. Meter needle should remain in Green (OK) area.
6. If meter needle goes to the Red (LO or HI) areas, the charging system is not operating correctly.

Trouble Shooting Hints

LO Voltage - may be caused by loose belt, defective voltage regulator or defective alternator.

HI Voltage - may be caused by loose or corroded connections or defective voltage regulator.

STARTER MOTOR TEST (12 VOLT VEHICLES)

This test identifies excessive starter current draw, which makes starting difficult and shortens battery life. Perform Battery Load Test - proceed if battery is "Good".

ENGINE MUST BE AT NORMAL OPERATING TEMPERATURE

1. Connect tester clamps to battery as described in Steps 1-2 under Battery Load Test.
2. Disable the ignition so the car will not start.
3. Crank the engine and note the voltage reading during cranking.
4. A meter reading of 9 volts or less indicates excessive current draw. This may be due to bad connections or a failing starter motor; or the battery is too small for the vehicle's requirements.

BATTERY FACTS

1. A fully charged battery at 0°F has only 40% of the cranking power it has at 80°F.
2. Battery failure is frequently caused by overcharging.

3. A warm battery charges faster than a cold battery.
4. All batteries self-discharge. Maintenance-free batteries self-discharge slower.
5. A heavy discharge will not damage the internal plates, but an overcharge will.
6. A fully charged battery freezes at -85°F, half-charged at -15°F and one quarter charged at +15°F.
7. A battery left in a state of discharge will sulfate and lose capacity.
8. Batteries should be stored in the coolest area possible to reduce self-discharge.

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